Physical Science

Name: KEY

STAR # 11313 MULTI-STEP PROBLEMS THESE ARE

DSHS

Per: _____

Dimensional Analysis & Measuring WS 3

Use dimensional analysis to solve the following problems. Show all steps needed to convert from starting units to ending units. Indicate all relationships needed before setting up and solving the problem. Use any of the following relationships if needed:

1 L = 1000 mL	1 m = 100 cm	1m = 1000 mm	1 cm = 10 mm
1 mile = 1760 yds	16 oz = 1 lb	1 L = 1.057 qts	1 day = 24 hours
1 yd = 3 ft	2000 lbs = 1 ton	4 qts = 1 gal	1 hour = 60 mins
1 ft = 12 in	1 oz = 28.35 g	32 oz = 1 qt	1 min = 60 secs
1 mile = 1.6093 km	1 kg = 2.205 lbs	1 qt = 2 pts	

1) 7870 mL to L

$7870\,mL \times \frac{1\,L}{1000\,mL} = 7.870\,L$

2) 6.42 Kg to lbs

$6.42\,kg \times \frac{2.205\,lbs}{1\,kg} = 14.16\,lbs$

3) 1850 cm to m

$1850\,cm \times \frac{1\,m}{100\,cm} = 18.5\,m$

4) 11.4 mi to yards

$11.4\,mi \times \frac{1760\,yds}{1\,mi} = 20064$

5) 3 m to mm

$3m \times \frac{1000\,mm}{1\,m} = 3000\,mm$

6) 25 oz to g

$25\,oz \times \frac{28.35\,g}{1\,oz} = 708.75\,g$

7) 74 cm to mm

$74\,cm \times \frac{10\,mm}{1\,cm} = 740\,mm$

8) 835 km to mi

$835\,km \times \frac{1\,mi}{1.6093\,km} = 518.86\,mi$

9) A runner competed in a 5-mile run. How many yards did she run?

$5\,mi \times \frac{1760\,yds}{1\,mi} = 8800\,yds$

Name: _____ Per: _____

10) In the Tour de France, cyclists ride 3,653.6 km in 20 days. How many miles do they go? [Hint: watch for unimportant information!]

$$3653.6\ km \times \frac{1\ mi}{1.6093\ km} = 2270.30\ mi$$

11) After a nice meal, perhaps you'd finish it off with a pound (1.00 lb) cake for dessert. What would the name of this cake be in grams?

$$1\ lb \times \frac{16\ oz}{1\ lb} \times \frac{28.35\ g}{1\ oz} = 453.6\ g$$

13) In the US milk is sold by the gallon, while in Denmark it is sold by the liter. How many liters of milk would you need to equal one gallon?

$$1\ gallon \times \frac{4\ quarts}{1\ gallon} \times \frac{1\ L}{1.057\ quarts} = 3.78\ liters$$

14) If you go to school for 180 days each school year and each school day is 7 hours long, how many hours are spent in school in one school year?

$$180\ days \times \frac{7\ hrs}{1\ day} = 1260\ hrs$$